

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
25 September 2003 (25.09.2003)

PCT

(10) International Publication Number
WO 2003/078962 A3

- (51) International Patent Classification⁷: G01N 33/573, 33/53
- (21) International Application Number: PCT/US2003/007527
- (22) International Filing Date: 11 March 2003 (11.03.2003)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/363,179 11 March 2002 (11.03.2002) US
- (71) Applicant (*for all designated States except US*): PRESIDENT AND FELLOWS OF HARVARD COLLEGE [US/US]; 17 Quincy Street, Cambridge, MA 02138 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (*for US only*): GYGI, Steven, P. [US/US]; 4 Stockbridge Road, Foxboro, MA 02035 (US). JUNMIN, Peng [US/US]; 32 Perthshire Road, Apt. 1, Brighton, MA 02135 (US).
- (74) Agent: REES, Dianne, M.; Edwards & Angell LLP, P.O. Box 9169, Boston, MA 02209 (US).
- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

(88) Date of publication of the international search report:
5 February 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2003/078962 A3

(54) Title: DETECTION AND QUANTIFICATION OF MODIFIED PROTEINS

(57) Abstract: The invention provides a method detecting and quantifying proteins by mass spectrometric analysis using peptide internal standards and provides a highly sensitive way of detecting protein modifications. In one aspect, the invention provides a method for determining a site of ubiquitination in a polypeptide and for evaluating ubiquitination targets in a population of polypeptides. In this way, a proteome ubiquitination map can be obtained which comprises information relating to the ubiquitination states of a plurality of cellular polypeptides. Maps can be obtained for a variety of different types of cells and cell states. For example, ubiquitination targets in normal and diseased cells can be evaluated. Preferably, the map is stored as data files in a database. Individual ubiquitinated polypeptides identified can be used to generate molecular probes diagnostic of a cell state and/or can serve as targets for agents that modulate one or more cellular processes.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/07527

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : GO1N 33/573, 33/53
US CL : 435/7.4, 7.1

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 435/7.4, 7.1; 436/518

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Biosis, Medline, Caplus

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X,P ---	US 6,465,199 B1 (CRAIG et al) 15 October 2002 (15.10.2002), see summary, column 13, lines 14-39, column 14, lines 56-67, column 28, lines 40-67, column 36, lines 25-67.	1-2, 7-10, 12, 29, 42, 44
Y,P X --	PIOTROWSKI, et al. Inhibition of the 26S Proteasome by Polyubiquitin Chains Synthesized to Have Defined Lengths, Journal of Biological Chemistry, September 1997, Vol. 272, No. 38, pages 23712-23721, see abstract, see page 23712, column 2, see page 23719, column 2, see entire document.	1-2, 8-9, 17, and 33 3-7, 10-16, 19-32, 34- 44

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"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 23 June 2003 (23.06.2003)	Date of mailing of the international search report 26 SEP 2003
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Deborah A Davis Telephone No. (703) 308-0196 <i>Janie Floyd</i> JFD